Neftyanoe Khozyaystvo - Oil Industry 2016 vol.2016 N11, pages 121-123

Study of rheological behavior of systems 'polymer solution - Rocks'

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Abstract

The main problem of high-viscosity oil is the low profitability of their involvement in the development. One of the promising ways to solve the problem is to find new technologies and approaches to improve the productivity of wells and oil recovery factor. For tertiary oil recovery techniques are widely used polymer and surface-active compounds that provide a controlled increase in the viscosity of formation water and extraction residual oil. The study of intermolecular interactions in the oil reservoir should be carried out, taking into account the general properties of the reservoir rock. As a result of studies have shown differences in calcite and dolomite parameters associated with different pore morphology and the interaction of polymer molecules with a porous surface. New data on the processes occurring at the interface in the system of formation fluids - mineral. Results of the study of the surface properties and rheologica! behavior of various mineral reservoir rock components, selected as model, allow us to establish the effectiveness of the various polymers in the technology of polymer flooding. The principles upon which the method further reagents for assessing the effectiveness of polymer flooding is proposed which takes into account the complex phenomena which take place in the surface layer of the formation fluid in contact with the reservoir rock.

Keywords

Contact angle, Heavy crude oil, Polymer flooding, Rheology